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PATENT

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On 5/28/03

TOWNSEND and TOWNSEND and CREW LLP

By: Lisa Kainer

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ruben Madrid

Application No.: 09/855,820

Filed: May 14, 2001

For: CARRIER WITH METHOD
BUMPS FOR SEMICONDUCTOR DIE
PACKAGES

Examiner: E. Wojciechowicz

Art Unit: 2811

DECLARATION UNDER
37 C.F.R. § 1.131

Sir:

I, Ruben Madrid, declare as follows:

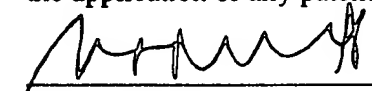
1. I am an inventor of the claimed inventions in the referenced patent application including pending claims 24, 26, 27, 29, 30-32, 34, and 36-37.
2. I have reviewed the Office Action mailed on January 29, 2003. I have also reviewed U.S. Patent Publication No. 2002/0074147A1 (Tan et al.) and U.S. Patent Publication No. 2002/0050912A1 (Shrier et al.), both of which are cited in the Office Action. U.S. Patent Publication No. 2002/0074147A1 (Tan et al.) has a U.S. filing date of December 15, 2000.
3. Prior to December 15, 2000, the inventions of the pending claims were reduced to practice. Reduction to practice of the inventions of the pending claims is evidenced by the following article "Application of Copper Bump

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Leadframe to MosFet BGA Technology.” A copy of a final version of this article is attached hereto as Exhibit A. Pages 1 and 2 of the article describe a process for stamping a leadframe. As shown in Figures 1 and 2, stamped copper bumps were formed simultaneously in a leadframe. Actual cross-sections of stamped copper bumps in a stamped leadframe produced according to the process shown in Figures 1 and 2 are shown in Figures 3 and 4. As explained at page 2 of the article, with respect to the bumps shown in Figures 3 and 4, the “conical angle of the bump is about 23° from [the] vertical reference” (for an angle of about 46°). As shown by the photograph in Figure 13, a semiconductor die was assembled to a stamped copper bump leadframe and solder was present on the semiconductor die. The stamped copper bumps are around the semiconductor die and are around a die attach region of the leadframe. Additional evidence of actual reduction to practice is at pages 4-6 and other pages of the article.

4. A print out of the document statistics for the version of the article in Exhibit A is attached hereto as Exhibit B. The print out shows that the article was last created and saved prior to December 15, 2000. All dates on the print out have been redacted.
5. Reduction to practice of the inventions of the pending claims is also evidenced by the document “MOSFET BGA Cu Stud Evaluation”, a copy of which is attached hereto as Exhibit C. This document includes a number of photographs of leadframes that were plated with Ni/Pd and that were stamped with copper bumps. The document date in the lower right hand corner of the document is prior to December 15, 2000, and has been redacted. The acts described in the document occurred before December 15, 2000.

6. As shown by Exhibits A-C, I believe that at least pending claims 24, 26, 27, 29, 30-32, 34, and 36-37 were reduced to practice prior to December 15, 2000, the filing date of U.S. Patent Publication No. 2002/0074147A1 (Tan et al.).
7. The inventions of at least the pending claims were reduced to practice in a World Trade Organization (WTO) country, and the acts relied on in this Declaration (and described in the Exhibits) took place in a WTO country, prior to December 15, 2000.
8. I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. §1001) and may jeopardize the validity of the application or any patent issuing thereon.



Ruben Madrid

22 MAY 2003
Date